SCIENCE BASED TARGETS

DRIVING AMBITIOUS CORPORATE CLIMATE ACTION

MAY 2015

MIND THE SCIENCE

A report by

CDP

DRIVING SUSTAINABLE ECONOMIES

Acknowledgements

WE MEAN BUSINESS

economic opportunity
through bold climate action

This report forms part of the work of the We Mean Business coalition.

We Mean Business is a coalition of organizations working with thousands of the world's most influential businesses and investors. These businesses recognize that the transition to a low carbon economy is the only way to secure sustainable economic growth and prosperity for all. To accelerate this transition, we have formed a common platform to amplify the business voice, catalyze bold climate action by all, and promote smart policy frameworks.

www.wemeanbusinesscoalition.org
Report writing: Mark Nicholls

Lead author and coordination: Pedro Faria

Contributors to this report include:
CDP: Nicole Labutong, Karl Wasmuth
WWF: Alberto Carrillo Pineda, Paola Delgado, Carole Tornay
UN Global Compact: Heidi Huusko
WRI: Nate Aden, Stephen Russel

Released in Paris, May 20th, 2015.

Introduction

Climate change presents a challenge that, in many ways, humankind is ill-suited to overcome. It is a long-term problem that requires immediate and sustained action. Mark Carney, the Governor of the Bank of England, spoke of the "tragedy of horizons" that makes it difficult for a financial regulator to address longer-term climate risks that are building up down the road.

Business leaders face a similar problem. They must balance pressing near-term problems with longer-term strategy. And few issues they face are as long-term as climate change. The world's struggle to bring global greenhouse gas emissions under control is an epic one, which will play out over the course of this century.

The emissions reductions needed to tackle climate change are not just long-term in nature – they are also very ambitious. Some of the heaviest emitting industrial sectors will need to virtually eliminate their carbon dioxide (CO_2) emissions over the decades to come.

"Everybody has the obligation now to find out where they are going to be 50 years from now … We have run out of time to be asking the other person to come forward first."

Christiana Figueres,
Executive Secretary, UNFCCC[1]

Long-term and transformational goals such as these do not come naturally to executives facing more immediate challenges. But there is an increasingly compelling business case for companies to set themselves long-term greenhouse gas reduction targets – targets that go beyond what is required by regulation, but which are aligned with what science tells us about climate risk.

How companies set emissions targets

Successful businesses are built on information, evidence and calculated risk-taking. That means that most businesses today acknowledge climate science and recognize that climate change poses risk. And many are taking action. No fewer than 81% of the world's 500 largest companies reported in 2014 as having emission reduction or energy-specific targets, according to data disclosed to CDP.

But most of those targets are not of a magnitude to meet the threat posed by climate change. Either they do not cover a meaningful percentage of the organization's emissions, or they are insufficiently long-term, or they are simply not ambitious enough. That is because most targets are set in response to existing or expected regulations, or are based on projects or investments that are underway or in the pipeline. Such approaches to target setting may deliver incremental reductions, but they will not lead to the low-carbon transformation of businesses and economies we need to tackle global warming.

What the science says

The world is currently on course for a catastrophic rise in average global temperatures by the end of this century of 6 degrees Celsius above pre-industrial levels, if additional efforts are not made to reduce emissions. The International Energy Agency (IEA) has calculated that, if existing emissions reduction and energy efficiency policies

1 Source: www.wemeanbusinesscoalition.org/leaders

Introducing the Science Based Targets initiative

CDP, the UN Global Compact, the World Resources Institute and WWF have come together to help corporations in establishing greenhouse gas reduction targets in line with climate science. The initiative aims to raise corporate ambition and drive bolder business solutions by identifying and promoting innovative approaches to corporate GHG goal setting, including through the development of a widely applicable target-setting methodology.

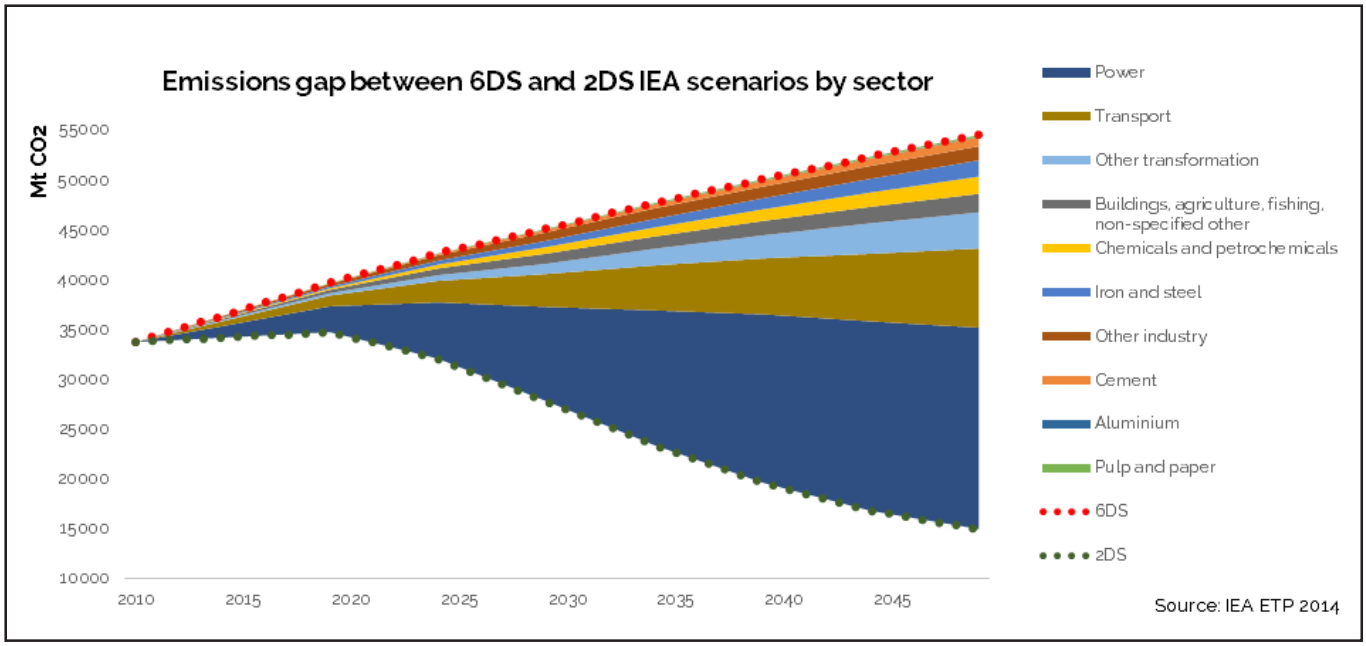
The four partners commit to scrutinizing corporate emissions targets and highlighting examples of corporate leadership; and to creating transparency and accountability by encouraging the wide dissemination of the data that will allow companies' actions to be objectively assessed.

For more information, see: www.sciencebasedtargets.org

are implemented,warming would be limited to 4 degrees Celsius[2]. But temperature rises of even this magnitude would risk severely destabilizing social and economic structures. As the World Bank has warned, there is "no certainty that adaptation to a 4˚C world is possible".[3]

In 2010, the world's governments agreed to work towards holding the average temperature rise to below 2˚C, a level deemed likely to prevent the worst effects of climate change. This threshold implies a 'carbon budget' – a total volume of greenhouse gases that can be emitted while still providing a degree of confidence that the 2˚C target can be met. Climate scientists calculate that, given emissions to 2010, no more than a further 1,180 $GtCO_2$ can be emitted to give us a greater than 66% chance of meeting the 2˚C target. According to figures from the Intergovernmental Panel on Climate Change (IPCC),this requires a 41-72% reduction of global emissions by 2050.[4]

Meanwhile, the IEA has modeled the gaps between the 2˚C, 4˚C and 6˚C scenarios on a sector-by-sector basis (see figure[5]). This modeling takes into account the sector-specific mitigation options and their cost-effectiveness. These calculations have profound implications for the corporate world. For most companies, emission reductions of the magnitude needed to close these gaps will simply not be possible without radically transforming their business models, energy use and energy procurement.



2. www.iea.org/publications/scenariosandprojections/
3. World Bank. 2012. *Turn down the heat: why a 4˚C warmer world must be avoided*. Washington DC: World Bank.
4. IPCC, 2014: Summary for Policymakers. In: Climate Change 2014: Mitigation of Climate Change. Contribution of Working Group III to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change
5. Based on data available from http://www.iea.org/etp/explore/ and IEA (2014) "Energy Technology Perspective 2014 - Harnessing Electricity's Potential", OECD/IEA, Paris

How states, regions and cities are taking action

Despite the size of the challenge, countries, regions and cities are beginning to set long-term targets that are in line with climate science. The EU has pledged to reduce its emissions by at least 80% below 1990 levels by 2050. Regions such as California and North Rhine Westphalia in Germany have set similar goals. CDP is working with The Climate Group and the sub-national government networks nrg4SD and R20 to found the Compact of States and Regions, to offer the first international framework for measuring and reporting state and regional emissions data. Ahead of the first reporting phase, nine states and regions have pledged 80% reduction targets.

Meanwhile, cities around the world are stepping up. Last year, 207 cities, with a combined population of almost 400 million people, reported their climate change efforts through CDP. Of these, 22 have set significant, long-term targets that require them to reduce emissions by 80% or more by 2050.

And later this year, governments will meet in Paris, at COP 21, to agree on a meaningful universal climate change agreement to succeed the Kyoto Protocol. Ahead of this crucial conference, countries are in the process of submitting medium-term emission reduction goals, through their Intended Nationally Determined Contributions, as they are known in the UNFCCC process. These 2030 targets will provide important context for the longer-term emissions objectives of companies. And these targets – and those of regions and cities – will be delivered, to a large extent, by the private sector. That fact only makes it more pressing that companies begin to align their emissions trajectories with the climate science.

> **"We encourage governments to set science-based global and national targets for reduction of GHG emissions and the development of alternative energy sources."**
>
> *An open letter from 43 global CEOs to world leaders.*[6]

Why it's time for companies to act…

The climate talks may be an intergovernmental forum, but it is imperative that corporations act. By pledging, ahead of the climate talks in Paris, long-term emission reduction targets that are aligned with a 2˚C world, companies can begin to develop their resilience against climate risks and prepare for the tightening climate regulations that will follow.

But the level of effort from the corporate world is still inadequate. Many companies that are major contributors to CO_2 emissions are yet to take significant action. At the most basic level, many companies still do not publicly report their emissions levels. Too many – including almost one fifth of world's 500 largest companies – do not set emission reduction targets.

While thousands of companies are now setting emissions targets, few of these are long-term, defined as up to 2030 or beyond. To realize the type of structural changes required, particularly in energy- and capital-intensive industries with long investment cycles, companies need a long-term vision of where they are heading. As short-term corporate emissions targets expire – as many have in 2014 and will in 2015 – there is an opportunity to replace them with longer-term goals aligned with a 2˚C world.

> **"The top companies in the world already have an internal price on carbon but, more importantly than that, have carbon reduction plans that well exceed the 6% reduction a year we need to stay within the two degree target."**
>
> **Paul Polman,**
> ***CEO, Unilever***[7]

Not all current targets are transparent and clearly communicated. Many companies still express their targets in a variety of ways, some of which cannot be easily translated into real CO_2 reductions by the users of the information. Having multiple targets is not necessarily a problem, but it must be possible to consolidate them at corporate level so they can be publicly scrutinized and benchmarked against their peers.

And of course few existing targets demonstrate the level of ambition within the time frame needed to address climate change. For many companies, this will mean an almost complete decarbonization by 2050. This may appear a daunting task, but corporate leaders increasingly understand that setting such targets is not an act of altruism, but is in their companies' own enlightened self-interest.

6 https://medium.com/@ClimateCEOs

7 Source: www.wemeanbusinesscoalition.org/leaders

Case study: Eneco Group

Eneco Group (www.eneco.com) is a Dutch energy company that supplies the daily energy needs of 2.2 million companies and households, mostly in the Netherlands, but also in the UK, France, Germany and Belgium. The company is owned by 55 Dutch municipalities and its own production is based on renewable energy (52%) and gas (48%). Together with its customers and partners, Eneco works to achieve its mission of 'sustainable energy for everyone'. Eneco is one of the co-founders of the One Planet Thinking (OPT) (www.oneplanetthinking.com) initiative which identifies the requirements to stay within the planetary boundaries. Eneco's long term climate target is based on the OPT approach and in 2050, they will operate below the 2°C scenario with their electricity portfolio.Eneco's long term target is to reduce its intensity to 11 gCO_2eq/kWh, which is consistent with the 2°C emissions scenario for the European power sector of the International Energy Agency. Since the European reduction scenario is stricter than the aggregated RCP 2.6 scenario, its long term target is even more ambitious than for the global average. In addition, as part of Eneco's membership in WWF's Climate Savers programme it has committed to reduce the CO_2eq emissions per kWh of all power used by Eneco´s customers by 15% in 2016 (to 179 gCO_2eq/kWh).

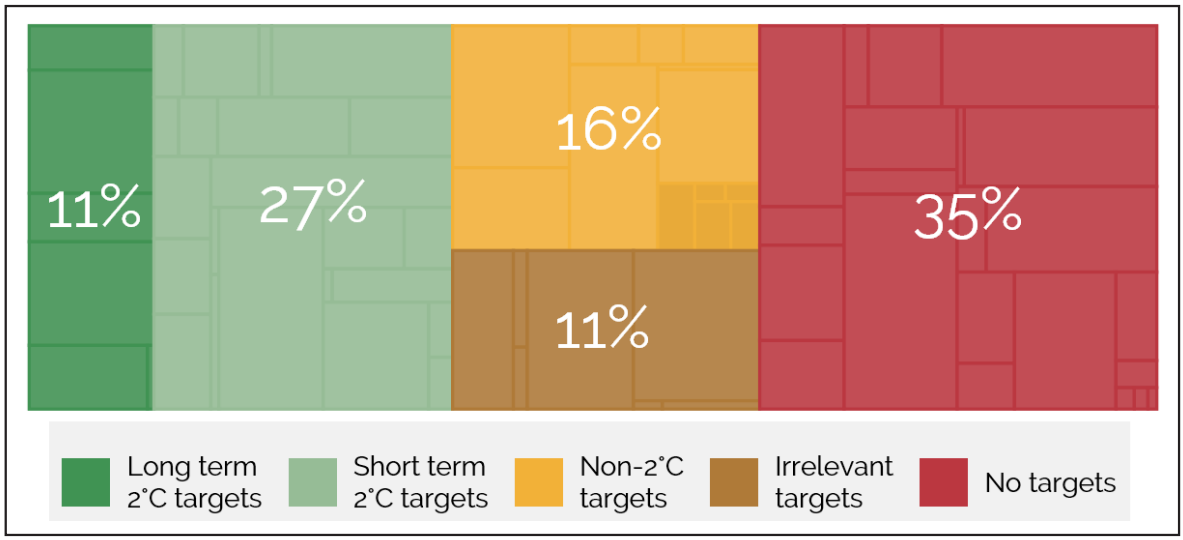
...And some are taking the first steps

Leading companies are recognizing this self-interest inherent in climate leadership. For example, more than 30 companies have pledged to set long-term, science-based climate targets. This number includes corporate giants such as Ford Motor Company, Unilever and Nissan, and household names such as Mars and H&M.

It is in the most energy-intensive sectors where the greatest opportunities to reduce emissions are to be found. To complement the IEA analysis, an assessment of the direct emissions (scope 1) targets of 70 of the world's largest publicly listed corporate emitters, across the aluminum, cement, chemicals and electric utility sectors has been carried out.

Those sample companies were responsible for the equivalent of 3.4 Gt of CO_2 emissions in 2014, or 9% of the global total.[8]

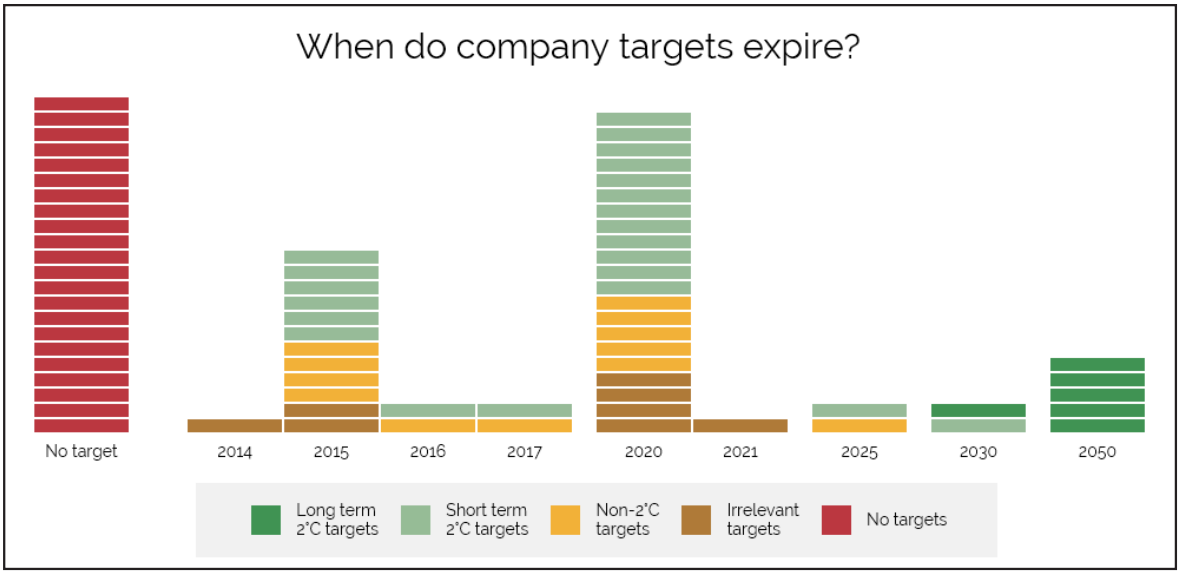
A preliminary analysis is available online.[9] For each of the companies, we have analyzed their current targets against a sector-specific 2°C compatible pathway. These pathways are calculated using the Sectoral Decarbonization Approach (SDA), a methodology developed by CDP, UN Global Compact, the World Resources Institute and WWF, with technical support from Ecofys. Put simply, the SDA divides the global carbon budget between industry sectors, based on each sector's projected level of economic activity and potential for emissions reductions.[10]



8 This report discusses carbon dioxide, rather than greenhouse gases more broadly, because CO_2 makes up the bulk of greenhouse gas emissions of the energy-intensive industries that our analysis is focused on, and the IPCC carbon budgets take the effects of other greenhouse gases into account.

9 See mindthescience.sciencebasedtargets.org

10 For a more detailed discussion of the Sectoral Decarbonization Approach, see sciencebasedtargets.org

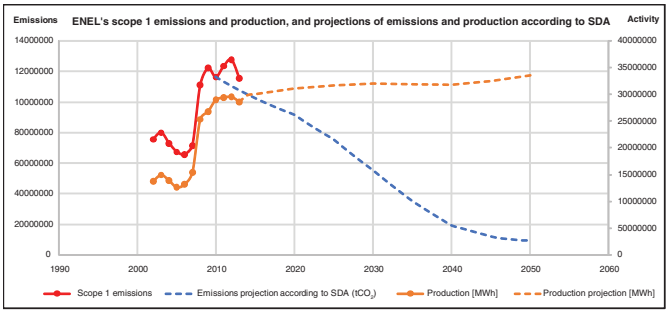


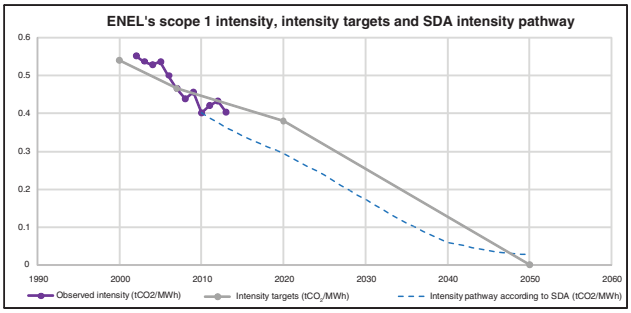
Of this sample,five companies, representing a total of 275.8 Mt of CO_2 of emissions, have set long-term reduction targets that are aligned with climate science. Hong Kong-based utility CLP, Italian power giant ENEL, its majority-owned subsidiary Endesa, independent US power producer and distributor NRG Energy, Verbund, an Austrian utility and Holcim, a Swiss-based cement company have recognized the business case for so doing.

Case study: ENEL

Enel is Italy's largest power company and Europe's second largest listed utility by installed capacity. Operating in 31 countries, its 96 GW of power generating capacity comprises 54 GW of fossil fuel power, and 42 GW of low-carbon generation.

The company's climate plan, which includes pledges to halt new investments in coal, the decommissioning of 13 GW of fossil power plants in Italy, and to work towards carbon neutrality by 2050, has transformed the company's relationship with environmental groups. The plan encouraged Greenpeace, for example, to reverse its long-running opposition to the company and release a joint statement with Enel in support.


Emissions
ENEL's scope 1 emissions and production, and projections of emissions and production according to SDA
Activity
Scope 1 emissions
Emissions projection according to SDA (tCO2)
Production [MWh]
Production projection [MWh]


ENEL's scope 1 intensity, intensity targets and SDA intensity pathway
Observed intensity (tCO2/MWh)
Intensity targets (tCO2/MWh)
Intensity pathway according to SDA (tCO2/MWh)

Enel has embraced smart meters, rolling them out across its 32 million customers in Italy, with plans to deploy 13 million more in Spain. It has an aggressive investment strategy equal to over 18 €bn in the next five year, with almost the 80% focusing on investments in renewable energy sources, energy efficiency, smart grids and innovation.

Its 2050 decarbonization target clearly puts the company in alignment with climate science. The company has set out a clear vision of how it expects its business to evolve, and is beginning to make the right investments to set it on a decarbonization pathway.

The business case for science-based targets

These companies, and others outside our sample, have set long-term emissions targets aligned with the science because they recognize that the interests of their shareholders are best served by embedding sustainability thinking into their strategic planning.

The advantages are numerous. Setting long-term science-based targets:

Spurs ambition and encourages innovation. Target-setting provides an unambiguous signal as to where company leadership expects the business to go. Setting deep, long-term targets provides the context for the strategic investments needed to transform business models.

As Hong Kong-based utility **CLP** states in its Climate Vision 2050, "Assets in our portfolio have a life-span of 40 to 60 years, and so it is crucial that we look several decades ahead in the planning and operational process." It adds that "it is therefore important that CLP maintains a clear climate strategy for the road ahead."[11]

Helps create and penetrate new markets. Entirely new markets will be created by the battle against climate change. Companies are set to earn many billions of dollars of revenues from services and technologies that help organizations understand and eliminate their climate impact. Taking a long-term, strategic approach to climate change will help to position corporate leaders to succeed in these new markets.

Take **Siemens**. The German electronics group now derives almost half its revenues from what it describes as its "environmental portfolio".[12] US utility **NRG's** diversification into retail energy distribution is another case in point, as it identifies distributed, low-carbon energy services as an engine for its corporate growth.

Makes companies more resilient to developing climate regulation and policy. The direction of travel is clear: tackling climate change will lead to regulatory interventions that risk becoming increasingly onerous for unprepared companies. Those that set and meet science-based targets will reduce their exposure to more stringent emissions and energy regulation. Leading companies are, meanwhile, likely to play a role in helping to shape those regulations.

Helps identify risk and exploit opportunities. The impacts of climate change will be felt over years to come. Some will be gradual; others will be dramatic. Setting long-term targets encourages planning to manage these impacts. Nearer-term, target setting can also be instrumental in identifying inefficiencies and opportunities for cost-savings.

Enhances corporate reputation. There is likely to be growing attention paid to climate change issues by regulators, the public and investors in the run-up to the Paris talks and beyond, as the effects of global warming are increasingly felt. Those companies that come forward with targets commensurate with the climate science will gain reputational advantages.

Indeed, investors are already demanding action. CDP Carbon Action, for example, has mobilized 304 institutional investors behind its call on energy-intensive industries to set targets and deliver reductions.

Is compatible with strong financial returns. The evidence from more than 10 years of data reported to the CDP is clear: there is a positive association between the setting of ambitious emissions targets and strong financial performance. Research from CDP found that companies with published emissions reduction targets were more profitable than those with no targets, delivering a return on invested capital of 9.9% over the trailing twelve-month period, compared with 9.2%.[13]

Setting science-based targets is not incompatible with economic growth. In fact, such targets can help drive innovation, reduce costs, and enhance profitability – while beginning to address the profound threats posed by climate change to both shareholder value and society at large. For example, the IEA estimates that the global economy will save $115 trillion in reduced fuel costs over 2011-2050 if the agency's 2˚C scenario is pursued compared with its 6˚C scenario.[14]

11 CLP website https://www.clpgroup.com/en/sustainability/our-approach/frameworks-strategies/climate-vision-2050

12 *Siemens Environmental Portfolio: Leading you to energy efficiency*

13 *Lower emissions, higher ROI: the rewards of low carbon investment*, CDP, 2014

14 *Energy Technology Perspectives 2014*, IEA, 2014

Case study: NRG Energy

NRG Energy is the largest independent power producer in the US, and the owner of 48.2 GW of fossil fuel-fired power production. But despite this substantial legacy, its strategy is firmly focused on a low-carbon future – and a commitment to cut its greenhouse gas emissions by 90% by 2050.

The company embarked in 2013 upon a major review of its approach to sustainability, which yielded a three-pronged business strategy. This is based on: 'Growing Green' – deploying low-carbon energy solutions across the value chain; 'Expanding Retail' – adding clean energy retail offerings; and 'Enhancing Generation' – by modernizing its generation fleet to reduce CO_2 emissions.

The strategy foresees a structural shift to decentralized energy solutions, and a managed evolution away from a dependence on large generating units and a national electrical transmission and distribution grid. It aligns the company's sustainability and growth strategies – NRG sees the potential for significant value creation in transforming its business model to a low-carbon one.

Mind the Science has assessed NRG's emissions targets. Its ambitious long-term targets fit well with science-based targets as calculated using the Sectoral Decarbonization Approach.

"As the U.S. transitions to a renewables-driven, increasingly distributed, grid resilient energy system, we expect to be a leader both in clean energy and in converting the CO_2 emissions of our conventional generation from a liability to a profitable by-product"

David Crane, *CEO, NRG*

How companies might approach science-based target setting

So where should companies start in setting emissions targets in line with climate science? A number of methodologies have been developed, which are summarized on the website of the Science Based Targets initiative, a collaboration between CDP, the UN Global Compact, the

"Climate change has the potential to be a big growth opportunity. If we can position ourselves to help our customers tackle their sustainability issues, then we can be in a position to not just survive, but thrive in a carbon-constrained environment."

Kevin Moss,
***then-head of net good programme, BT*[15]**

The cement sector – setting a global standard

The Cement Sustainability Initiative (CSI) demonstrates what an industry sector can achieve when it collaborates to address climate change. Set up in 1999 by 10 of the world's leading cement producers, the CSI has addressed a series of sustainability issues, including climate change. It developed sector-wide standardization of the monitoring and reporting of energy and emissions, and a low-carbon roadmap up to 2050 for the industry, in partnership with the International Energy Agency.

Of the 10 cement companies analysed for this report, eight are members of the CSI. Six of these regularly report their CO_2 emissions and have CO_2 reduction targets that usually run to 2020 and are aligned with 2°C pathway as defined by the Sectoral Decarbonization Approach. This creates a high level of consistency in reporting that facilitates the evaluation of the companies involved.

CSI member companies commit under the CSI Charter to develop a climate change mitigation strategy and to report their CO_2 emissions, reduction targets and progress toward reaching those targets. The monitoring and reporting they carry out, alongside their sharing of experiences and learning, and a degree of peer pressure, all encourage improved emissions performance – and, indeed, most of them have been achieving consistent emission reductions for the past decade.

15 Source: www.wemeanbusinesscoalition.org/leaders

World Resources Institute and WWF. A manual to advise upon science-based target-setting will be published during 2015, offering advice on the most robust approaches. A tool is available to allow companies to assess whether their long-term target is aligned with the Sectoral Decarbonisation Approach.[16]

Essentially, there are four steps companies should take to align corporate emissions targets with climate science:

[1] **Project the expected level of activity for the company**, based on growth forecasts.

[2] **Identify a level of emissions compatible with the 2 degrees pathway**, based on a specific science-based methodology and an appropriate 2°C scenario.

[3] **Set targets compatible with the pathway**, to inform the changes needed to production processes, energy sources, materials used and business models.

[4] **Adjust strategies, adjust targets**, to reflect actual performance and any structural changes to the business.

Companies should also look to their peers for valuable early experiences in setting science-based targets. And they should remember that aligning emissions targets and corporate strategy with the climate science is good for the environment, good for society, and good for business.

16 See http://tool.sciencebasedtargets.org/

This report and other materials are available for download from http://sciencebasedtargets.org/

Contact us at info@sciencebasedtargets.org

Important Notice

Subject to the following terms and conditions, the contents of this report may be copied and distributed provided acknowledgement is given to CDP. This does not represent a license to repackage or resell any of the data reported to CDP or the contributing authors and presented in this report, or to create derivative works based upon the contents of the report. If you intend to repackage or resell any of the contents of this report, or to create derivative works based upon it, you must obtain express permission from CDP before doing so. No representation or warranty (express or implied) is given by CDP or any of its contributors as to the accuracy or completeness of the information and opinions contained in this report or its fitness for a particular purpose, and no warranty of merchantability or non-infringement is made. You should not act upon the information contained in this publication without obtaining specific professional advice. To the extent permitted by law, CDP, do not accept or assume any liability, responsibility or duty of care for any consequences of you or anyone else acting, or refraining to act, in reliance on the information contained in this report or for any decision based on it. All information and views expressed herein by CDP, and any of its contributors is based on their judgment at the time of this report and are subject to change without notice due to economic, political, industry and firm-specific factors. Guest commentaries where included in this report reflect the views of their respective authors; their inclusion is not an endorsement of them. CDP and its contributors, their affiliated member firms or companies, or their respective shareholders, members, partners, principals, directors, officers and/or employees, may have a position in the securities of the companies discussed herein. The securities of the companies mentioned in this document may not be eligible for sale in some states or countries, nor suitable for all types of investors; their value and the income they produce may fluctuate and/or be adversely affected by exchange rates.

The inclusion of company examples in this publication is intended strictly for learning purposes and does not constitute an endorsement of the individual companies by CDP and authors in this report.

'CDP' refers to CDP Worldwide, a United Kingdom company limited by guarantee, registered as a United Kingdom charity number 1122330.

© 2015 CDP. All rights reserved.

Published by:
CDP

Copyright: CDP, 2015

Explore more data on company targets at http://mindthescience.sciencebasedtargets.org/

SCIENCE BASED TARGETS INITIATIVE

CDP
DRIVING SUSTAINABLE ECONOMIES

THE GLOBAL COMPACT

WWF